

21 under 35 U.S.C. § 103(a) was improper at least because there was no motivation to combine the teaching of Yuko with those of Forester et al. Applicant's representatives further pointed out that Yuko, in fact, teaches away from the present claimed invention because Yuko teaches the use of only organic solvents and does not provide any motivation to replace organic solvents with water. In response, Examiner Ahmed requested Applicant to file a response to the outstanding Office Action containing the same arguments.

In the Office Action, the Examiner rejected claims 2-4, 6, 9, 10, 12-14, 16, 19, and 21- 23 under 35 U.S.C. § 103(a) as unpatentable over Yoko in view of Forester et al.; and rejected claims 10-14, 16, 19, and 22 under 35 U.S.C. § 103(a) as being unpatentable over Yoko in view of Forester et al., and further in view of May et al. (U. S. Patent No. 5,950,106). Claims 2-4, 6, 9, 10, 12-14, 16, 19, and 21-23 are currently pending.

In accordance with the Examiner's request, Applicant files this response traversing the rejection of claims 2-4, 6, 9, 10, 12-14, 16, 19, and 21- 23 under 35 U.S.C. § 103(a) for the following reasons.

To establish a *prima facie* case of obviousness under 35 U.S.C. § 103(a), each of three requirements must be met. First, the reference or references, taken alone or combined, must teach or suggest each and every element recited in the claims. (See M.P.E.P. § 2143.03 (8th Ed. 2001).) Second, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the references in a manner resulting in the claimed invention. Third, a reasonable expectation of success must exist. Moreover,

each of these requirements must “be found in the prior art, and not be based on applicant’s disclosure.” M.P.E.P § 2143 (8th Ed. 2001).

Claims 2-4, 6, 9, and 10 depend, directly or indirectly, from independent claim 21. Claim 21 recites a method of forming a pattern comprising, among other things, “forming a layer containing silicon or a metal on [an] upper resist pattern by a coating method using an aqueous solution of a water-soluble polymer containing silicon or a metal.”

As admitted by the Examiner, “Yoko fails to teach that the covering layer (SOG) is a water-soluble polymer” Office Action at page 3. Therefore, in contrast to the present claimed invention, Yoko does not teach or suggest at least “forming a layer containing silicon or a metal on [an] upper resist pattern by a coating method using an aqueous solution of a water-soluble polymer containing silicon or a metal,” as recited in claim 21. In fact, Yoko teaches away from the present claimed invention because Yoko discloses that “about SOG, it is optimal to use organic [solvents].” Yoko at paragraph [0018].

Forester et al. fails to cure the deficiencies of Yoko noted above. Forester et al. discloses that “one applies a liquid dielectric layer, preferably a spin-on-glass such as a silicate or a siloxane in a suitable solvent, to the substrate surface under ambient conditions. Suitable solvents non-exclusively include water and organic solvents in an amount sufficient to form a uniform solution or dispersion of the dielectric material.” Id. at col. 3, lines 59-64. Forester et al. merely discloses that water and organic solvents may be used as solvents for dissolving SOG. However, Forester et al. does not teach or suggest at least “forming a layer containing silicon or a metal on [an] upper resist

pattern by a coating method using an aqueous solution of a water-soluble polymer containing silicon or a metal,” as recited in claim 21.

Moreover, in the preferred embodiment of Forester et al., “a water content of from about 0 to about 11%” is disclosed. In other words, Forester et al. merely discloses a small water content in SOG - a water content that is smaller than the amount of any other liquid component - which can not be considered as corresponding to the claimed “aqueous solution.”

Because Yoko and Forester et al., either taken alone or in combination, fail to teach or suggest at least “forming a layer containing silicon or a metal on [an] upper resist pattern by a coating method using an aqueous solution of a water-soluble polymer containing silicon or a metal,” the Examiner has failed to make a *prima facie* case of obviousness for claim 21. Therefore, the rejection of claim 21 under 35 U.S.C. § 103(a) is improper, and Applicant respectfully requests the Examiner to withdraw the rejection of claim 21 under 35 U.S.C. § 103(a) and the claim allowed. Claims 2-4, 6, 9, and 10 are also allowable at least in view of their dependency, directly or indirectly, from claim allowable claim 21.

Furthermore, in the Office Action, the Examiner alleges that “it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to combine Forester et al.’s teaching into Yoko’s process for efficiently making the covering layer with uniform dispersion of the SOG material in the aqueous solution during the deposition of the covering layer as taught by Forester et al.” Office Action at page 3. Applicant respectfully disagrees with the Examiner’s allegations and conclusions as set forth in the Office Action.

Applicant respectfully contests the Examiner's allegations as a generalized statement of questionable relevance and point out that the M.P.E.P. clearly states that "[t]he mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination." (emphasis in original) M.P.E.P. § 2143.01. The Examiner has failed to provide any motivation for combining the teachings of Forester et al. with those of Yoko. Further, in view of the teachings away of Yoko (as discussed herein), Applicant respectfully submits that there is no motivation to combine the teachings of Forester et al. with those of Yoko.

During the interview with the Examiner on April 15, 2004, the Examiner acknowledged that the Examiner had failed to provide any motivation to combine the teachings of Yoko with those of Forester et al. However, the Examiner attempted to cure this by alleging that there may be motivation to use water as a solvent in place of organic solvents because it would be cheaper to use water. Applicant respectfully disagrees with the Examiner because the motivation to combine the references must be "found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art." M.P.E.P. § 2143.01. The Examiner does not contend that there is, and the cited references do not show, any motivation in the references themselves to combine the teachings of Yoko with those of Forester et al.

If the Examiner is relying on his personal knowledge, Applicant refers the Examiner to the February 21, 2002 Memorandum from USPTO Deputy Commissioner for Patent Examination Policy, Stephen G. Kunin, regarding "Procedures for Relying on

Facts Which are Not of Record as Common Knowledge or for Taking Official Notice.” In relevant part, the Memorandum states, “If the examiner is relying on personal knowledge to support the finding of what is known in the art, the examiner must provide an affidavit or declaration setting forth specific factual statements and explanation to support the finding” (Memorandum, p. 3). Applicant submits that “[d]eficiencies of the cited references cannot be remedied by … general conclusions about what is ‘basic knowledge’ or ‘common sense.’” *In re Lee*, 61 USPQ2d 1430, 1432-1433 (Fed. Cir. 2002), quoting *In re Zurko*, 59 USPQ2d 1693, 1697 (Fed. Cir. 2001). Should the Examiner maintain the rejection after considering the arguments presented herein, Applicant submits that the Examiner must provide “the explicit basis on which the examiner regards the matter as subject to official notice and [allow Applicants] to challenge the assertion in the next reply after the Office action in which the common knowledge statement was made” (*Id.* at 3, emphasis in original), or else withdraw the rejection.

Claims 12-14, 16, and 19 depend from claim 22. Claims 22 and 23, although different in scope, include recitations similar to claim 21. For at least the reasons mentioned above regarding claim 21, Yoko and Forester et al., either taken alone or in combination, do not teach or suggest each and every element of claims 22 and 23. Therefore, the rejection of claims 22 and 23 under 35 U.S.C. § 103(a) is improper, and Applicant respectfully requests the Examiner to withdraw the rejection of claims 22 and 23 and the claims allowed. Claims 12-14, 16, and 19 are also allowable at least in view of their dependency from allowable claim 22.

On pages 4-5 of the Office Action, the Examiner rejected claims 10-14, 16, 19, and 22 under 35 U.S.C. § 103(a) as being unpatentable over Yoko in view of Forester et al., and further in view of May et al. Applicant respectfully traverses this rejection because the Examiner has failed to make a *prima facie* case of obviousness.

First, claim 11 was canceled in the Amendment filed on October 7, 2003. Therefore, Applicants assume the rejection of claim 11 under 35 U.S.C. § 103(a) in the outstanding Office Action is in error. Applicant requests the Examiner to clarify the situation in the next communication.

Second, claim 10 depends from claim 21 and claims 12-14, 16, and 19 depend from claim 22. As discussed above, Yoko and Forester et al., either taken alone or in combination, fail to teach or suggest at least “forming a layer containing silicon or a metal on [an] upper resist pattern by a coating method using an aqueous solution of a water-soluble polymer containing silicon or a metal,” as recited in claims 21 and 22. May et al., cited merely for a teaching of dry etching and wet etching, fails to cure the deficiencies of Yoko and Forester et al., noted above.

Because Yoko, Forester et al., and May et al., either taken alone or in combination, fail to teach or suggest each and every element of claims 21 and 22, the rejection of these claims under 35 U.S.C. § 103(a) is improper. Accordingly, Applicant respectfully requests the Examiner to withdraw the rejection of claims 21 and 22 under 35 U.S.C. § 103(a) and the claims allowed. Claims 12-14, 16, and 19 are also allowable at least in view of their dependency from allowable claim 22.

In view of the foregoing remarks, Applicant respectfully requests reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge
any additional required fees to our deposit account 06-0916.

Respectfully Submitted,

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Dated: June 3, 2004

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